Columbia River Salmon and Steelhead Endorsement Advisory Board

Application for Funding

Applicant: WA Dept. of Fish & Wildlife, Region 3 Fishery Management

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Proposal Title: Renewal (6) "**2016 Yakima River Spring Chinook Mark-Selective Fishery Monitoring"**

Type of Proposal: Fishery Monitoring (Creel)

Date of Submission: February 25, 2016

Effective Period of Funding: May 1 – July 15, 2016 (6 – 10 weeks duration within this time frame depending on run timing/size and river conditions)

Amount of Direct Budget Funding Requested: **$18,278**

Activity to be funded: Creel census conducted by two (possibly three) scientific technicians

Background: In 2002, WDFW first implemented a mark-selective Yakima R. spring chinook fishery to target Cle Elum Hatchery (CESRF) fish, which are 100 percent adipose fin clipped. The non-tribal sport fishery is the primary tool for managing the proportion of hatchery fish on the spawning grounds. Based on Hatchery Scientific Review Group (HSRG) guidelines, the proportion of hatchery-origin spawners (pHOS) upstream of Roza Dam should not exceed 50%. Except for five years (2004, 2005, 2013, 2014, 2015), pHOS has exceeded 50% each year since 2001 (average 54%; 76% high in 2002; 36% in 2015). The high proportion of hatchery fish on the spawning grounds means that if the overall adult return and percentage of hatchery fish is high enough to open the fishery, the fishery will not be constrained by a harvest quota, escapement goals, or ESA wild mortality allowable impacts (Yakima Basin spring chinook are not ESA-listed). Once open, the fishery runs as long as hatchery fish are available to be caught below Roza Dam and angler effort is sufficient to justify continuing creel to keep the fishery open.

In 2015, the fishery in the upper river opened on May 9 and ran through June 30. The lower Yakima R. fishery ran from May 2 – June 15. We anticipate similar fishery timing/duration in 2016 if the fishery occurs. In 2014, WDFW moved the lower river fishery downstream boundary to the SR 240 Bridge in Richland to increase boat and bank angler opportunity, while minimizing possible encounters with ESA-listed upper Columbia River wild chinook. This

action added 2.5 miles of fishing area in the center of the Tri-cities urban area. Under permanent rule, Columbia River fishing regulations (and ESA "wild take" constraints) apply in the Yakima R. downstream of the SR 240 Bridge, which is considered the mouth of the Yakima R. for fishing regulation purposes. No ESA "allowable take" allocation for UCR spring chinook was required to move the fishery boundary downstream to this location.

Proposed Activity: This proposal would renew CRSSE funding for fishery monitoring. The lower river fishery is monitored by Dist. 4 staff from the Pasco office; the upper section is monitored by Dist. 8 staff from the Yakima regional office. The lower river fishery will open by emergency rule in mid to late April (e.g. same time lower Snake R. below Ice Harbor Dam opens) and run for up to four to six weeks (maximum of **1.5 staff-months of creel)**, depending on run timing, river conditions, and abundance at Prosser Dam. If the run size at Prosser Dam is insufficient to open the upriver fishery from Union Gap to Roza Dam, the lower river fishery may close early. If the run at Prosser is abundant enough to open the upper river fishery, it will likely run from early to mid-May to the end of June utilizing one creel technician for a maximum of **2.5 staff-months**.

Budget Summary:

Budget Item	Quantity	Unit Cost	Total Cost
Creel Technician Salaries	4.0 staff-months	$2,680/s-m (Range 36, Step C)	**$10,722**
Benefits	"	$639/s-m	**$2,556**
Goods & Services (vehicle mileage, portable toilet/dumpster rentals, misc. equipment, HR personnel fees)			**$5,000**
Direct Budget Total			**$18,278**

Need for Proposed Activity: WDFW has two primary objectives in conducting fishery monitoring. First, as co-managers with the Yakama Nation (YN) and as partners with BPA and YN on the Yakima/Klickitat Fisheries Project (YKFP), WDFW has an obligation to estimate harvest of CESRF hatchery fish and catch/release of natural-origin fish so that impacts of the sport fishery can be accounted for in evaluating the long-term effectiveness of the YKFP hatchery supplementation program. We bio-sample the harvest to collect coded-wire tags implanted in all hatchery fish. WDFW reports the harvest and catch estimates to the YKFP Data Manager, who maintains the YKFP spring chinook database and develops the run reconstruction and the pre-season forecast for next year's run. An estimate of non-tribal sport harvest is necessary to complete the run reconstruction and forecast. We also use the angler effort and harvest estimates to generate annual estimates of economic benefit of the fishery to the local economy.

The return in 2015 of 8,795 adults (estimated to the river mouth) was about the same as the adult return in 2014, but the jack (age 3 males) return declined by 78 percent (2,472 in 2014; 556 in 2015). The significant reduction in jack return translates to a 2016 forecast that is only 55% of the recent 10-year (2006-2015) average adult return of 8,320 spring chinook. The forecast is for 3,100 wild/natural and 1,500 hatchery-origin adult (age-4 and age-5) spring chinook returning to the mouth of the Yakima River for a total of 4,600 adults. This forecast is

similar to the actual return in 2003, a year that WDFW did not open the sport fishery. If the 2016 forecast proves to be accurate, WDFW may not open the upper river sport fishery or may shorten the season because there will not be enough hatchery fish for a mark-selective fishery and the mark rate will be too low (33%). Since 2001, the hatchery component of the run has exceeded 2,600 adults every year that we have opened the fishery (Appendix Table 1). Estimated harvest of hatchery fish has ranged from 362 to 1,579 (adults plus jacks) since 2008. The sport fishery could potentially harvest a high percentage of a 1,500 hatchery adult return. Every natural-origin and hatchery fish will be needed to spawn naturally or to provide hatchery broodstock if the preseason forecast is correct.

Benefit of Proposed Activity: Table 1 shows annual Yakima River spring chinook fishery estimates of angler-hours, angler-trips, harvest, chinook harvest per 1,000 angler-trips, and estimated economic value to the local/state economy for the last eight years. Although fishing conditions in 2015 (flow & clarity) were very good because of the "snow drought" and the absence of high, turbid runoff, the fish moved through the system and passed above Roza Dam much faster than previous years, and thus became unavailable for harvest. Consequently, angler effort and harvest were the lowest observed since 2008. However, estimated harvest per unit effort (HPUE) was similar to 2009, 2010 and 2012.

Table 1. Angler effort, angler trips, harvest, and estimated economic value of the Yakima River spring chinook fishery, 2008-15.

Year	Effort (Angler-Hours)	Angler-Trips[1]	Harvest (adults + jacks)	Fish Harvested per 1,000 Trips	Estimated Economic Value[2]
2008	18,560	5,800	586	101	$336,400
2009	20,853	6,517	541	83	$377,986
2010	47,108	14,721	1,154	78	$853,818
2011	35,279	11,025	1,579	143	$639,450
2012	26,132	8,166	735	90	$473,628
2013	22,798	7,354	786	107	$426,532
2014	22,174	6,929	803	116	$401,882
2015	14,376	4,493	362	81	$260,594
Totals	**207,280**	**65,005**	**6,546**	**100**	**$3,770,290**

Mean Annual Economic Value = **$471,286**

[1] @ 3.2 angler-hours/trip (2010 average)

[2] Economic value of chinook/steelhead fishing in freshwaters is $58/day (Wegge 2008)

Additional Considerations: This fishery continues to be extremely popular and attracts both local anglers and anglers from outside the Yakima Basin, as far away as the Puget Sound area and Spokane. This fishery also provides tangible proof to BPA ratepayers, both anglers and non-anglers, who fund the Yakima/Klickitat Fisheries Project and the CESRF hatchery production that salmon recovery efforts in the Yakima Basin are worth the cost and provide tangible benefits to the angling public. The lower river fishery area provides "small river" spring chinook opportunity close to the Tri-cities and lower Yakima Valley anglers, particularly in the Tri-cities and Prosser urban areas where an established bank fishery for fall chinook has developed. The 2014 expansion of the fishery downriver to the SR 240 Bridge in Richland provides boat anglers entering the Yakima R. from the Columbia R. the opportunity to fish for

Yakima Basin hatchery spring chinook, without the constraints of ESA impact limits, in an area where no such opportunity previously existed.

Appendix Table 1. Estimated Spring Chinook counts at Prosser Dam, 1985-Present.

	Adults				Jacks			Total Passage			Actual CESRF	Forecast CESRF
Year	CESRF	Wild/Nat.[2]	Total	Fishery?	CESRF	Wild/Nat.[2]	Total	Total	Wild/Nat.[2]	CESRF	Percent	Percent
1985			3,815				424	4,239				
1986			8,557				352	8,909				
1987			3,758				326	4,084				
1988			3,590				323	3,913				
1989			4,112				242	4,354				
1990			2,202				53	2,255				
1991			2,750				129	2,879				
1992			4,282				133	4,415				
1993			3,795				80	3,875				
1994			1,283				19	1,302				
1995			528				138	666				
1996			2,946				133	3,079				
1997			3,126				47	3,173				
1998			1,771				132	1,903				
1999			1,795				978	2,773				
2000	41[1]	17,381	17,422	Yes	741	848	1,589	19,011	18,229			
2001	7,803	11,960	19,763	Yes	1,087	622	1,709	21,472	12,582	8,890	41.4%	38.3%
2002	7,393	6,661	14,054	Yes	369	348	717	14,771	7,009	7,762	52.5%	56.6%
2003	1,257	3,742	4,999	No	989	910	1,899	6,898	4,652	2,246	32.6%	20.6%
2004	4,195	10,218	14,413	Yes	170	571	741	15,154	10,789	4,365	28.8%	41.2%
2005	737	7,160	7,897	No	540	287	827	8,724	7,447	1,277	14.6%	17.7%
2006	2,448	3,563	6,012	No	151	151	302	6,314	3,714	2,599	41.2%	31.3%
2007	823	2,044	2,867	No	866	560	1,426	4,293	2,604	1,689	39.3%	15.9%
2008	3,264	3,127	6,391	Yes	1,169	499	1,668	8,059	3,626	4,433	55.0%	48.3%
2009	3,039	3,590	6,629	Yes	3,183	791	3,974	10,603	4,381	6,222	58.7%	55.7%
2010	6,601	4,327	10,928	Yes	1,491	567	2,058	12,986	4,894	8,092	62.3%	71.9%
2011	5,705	7,043	12,748	Yes	2,770	1,533	4,303	17,051	8,576	8,475	49.7%	39.9%
2012	4,715	5,206	9,921	Yes	475	326	801	10,722	5,532	5,190	48.4%	47.2%
2013	2,665	3,841	6,506	Yes	1,461	1,087	2,548	9,054	4,928	4,126	45.6%	44.2%
2014	3,643	5,061	8,704	Yes	1,430	967	2,397	11,101	6,028	5,073	45.7%	36.8%
2015	2,690	6,035	8,725	Yes	241	302	543	9,268	6,337	2,931	31.6%	42.3%
2016[3]	1,500	3,100	4,600	???	?	?	?	?	?	?	?	?

1. There were no Cle Elum Hatchery (CESRF) adults returning in 2000. These are marked fish; presumably out-of-basin strays.
2. All fish prior to 2000 are assumed to be wild.
3. Pre-season forecast